



Smartec STC-2800 ZOOM Camera (22x Auto Focus)

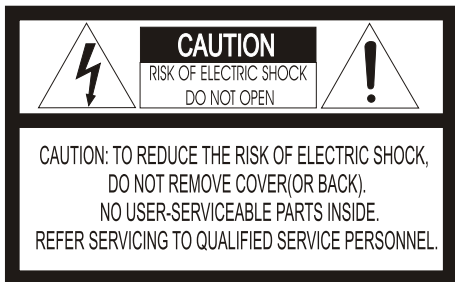


User Manual

WARNINGS AND CAUTIONS:

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECTS THROUGH THE VENTILATION GRILLS OR OTHER OPENINGS ON THE EQUIPMENT.

CAUTION:



EXPLANATION OF GRAPHICAL SYMBOLS



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

PRECAUTIONS

Safety -----

Should any liquid or solid object fall into the cabinet, unplug the unit and have it checked by the qualified personnel before operating it any further.

Unplug the unit from the wall outlet if it is not going to be used for several days or more. To disconnect the cord, pull it out by the plug. Never pull the cord itself.

Allow adequate air circulation to prevent internal heat build-up. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation holes. may block the ventilation holes.

Height and vertical linearity controls located at the rear panel are for special adjustments by qualified personnel only.

Installation -----

Do not install the unit in an extremely hot or humid place or in a place subject to excessive dust, mechanical vibration.

The unit is not designed to be waterproof. Exposure to rain or water may damage the unit.

Cleaning -----

Clean the unit with a slightly damp soft cloth. Use a mild household detergent. Never use strong solvents such as thinner or benzene as they might damage the finish of the unit.

Retain the original carton and packing materials for safe transport of this unit in the future.

FCC COMPLIANCE STATEMENT

INFORMATION TO THE USER : THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT.

THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

CAUTION : CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

THIS CLASS A DIGITAL APPARATUS COMPLIES WITH CANADIAN ICES-003.

CET APPAREIL NUMÉRIQUE DE LA CLASSE A EST CONFORME À LA NORME NMB-003 DU CANADA.

CE COMPLIANCE STATEMENT

WARNING

THIS IS A CLASS A PRODUCT. IN A DOMESTIC ENVIRONMENT THIS PRODUCT MAY CAUSE RADIO INTERFERENCE IN WHICH CASE THE USER MAY BE REQUIRED TO TAKE ADEQUATE MEASURES.

IMPORTANT SAFEGUARDS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that product heat..
9. Do not defeat the safety purpose of the polarized or grounding-type Plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where thy exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug this apparatus during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. CAUTION - THESE SERVICING INSTRUCTIONS ARE FOR USE BY QUALIFIED SERVICE PERSONNEL ONLY. TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE OPERATING INSTRUCTIONS UNLESS YOU ARE QUALIFIED TO DO SO.
15. Use Certified/Listed Class 2 power supply transformer only.

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1

Introduction



The AutoFocus Zoom color DSP Camera provides especially for closed circuit television (CCTV) and security surveillance application.

1.1 THE CAMERA FEATURES :

- High performance SONY 1/4" Super HAD CCD
- 242x zooming capability (Optical : 22x / Digital : 11x)
- Ultra Sensitivity Minimum illumination of 0.002 lux @F1.6 (low shutter)
- Excellent picture quality
- Various picture effects
- Flexible configuration
- Support camera control available RS-485
- DC 12V input

(CAUTION : Use Certified/Listed Class 2 power supply transformer only.)

- Function : - Low-SHUT (Digital Slow shutter)
 - DIS (Digital Image Stabilize) - WDR (Wide Dynamic Range)
 - DNR (Digital Noise Reduction) - AWB (Auto White Balance)
 - AE (Auto Exposure) - AGC (Auto Gain Control)
 - BLC (Back Light Compensation) - OSD (On Screen Display)
 - D-Zoom (Digital Zoom) - NEGA/POSI (Negative / Positive)
 - B/W (Black / White) - PIP (Picture In Picture)
 - FREEZE (Rear & still picture) - MIRROR (Right, left reverse picture)



IMPORTANT : The user of this camera is responsible for checking and complying with local, state, and federal laws and statutes concerning the recording and monitoring of audio signals.

2 System Installation



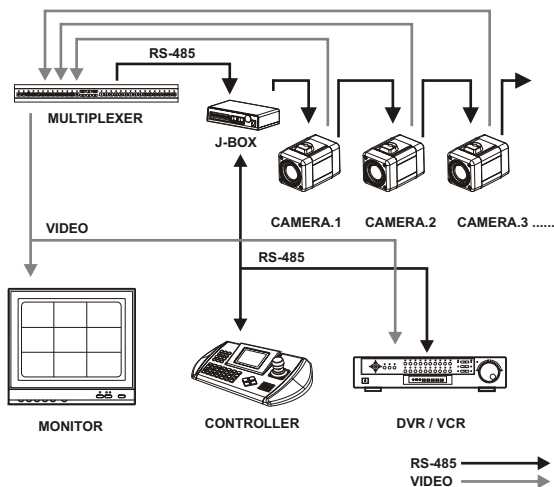
Installation of the camera must be performed by qualified service personnel in accordance with all local national electrical and mechanical codes must perform installation of the camera.

Perform the following steps to install the camera.

2.1 PACKAGE CONTENTS

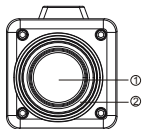
- Camera - 1EA
- Instruction Manual - 1EA
- 12pin Interface Cable - 1EA
- Camera Mounting Bracket (option)
- A/D Remote Controller (option)

2.2 OPERATION REQUIREMENTS

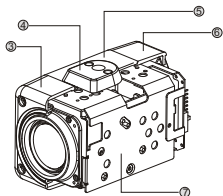


< Typical System Configuration >

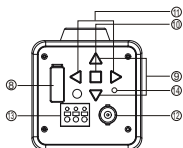
3 Parts Name & Function



Front view



Side view



Rear view

- ① **Zoom Lens**
Integrated lens with 22x optical and 11x digital zoom.
- ② **Filter mount**
Accepts commonly used filters with 37mm diameter.
- ③ **Front Case**
- ④ **Mounting Adapter**
Is used to mount the camera onto a bracket.
- ⑤ **Case Body**
- ⑥ **Rear Case**
- ⑦ **Camera Module**
- ⑧ **Connector for control interface**
12pin connector

PIN	Description	Description	PIN
485-	RS-485(-)	RS-485(+)	485+
TX	RS-232 TXD IN	RS-232 RXD IN	RX
EXT-OUT	External Out	Ground	GND
EXT-IN	External In	A/D KEY 2	AD2
AD1	A/D KEY 1	Far (-), Near (+)	FOCUS
COM	Common	Tele (-), Wide (+)	ZOOM

⑨ **TELE, WIDE Button**

Zoom control: Push "WIDE" for wide angel views and "TELE" to zoom in.

⑩ **MENU Button**

Menu functions in the OSD display can be controlled when the OSD menu is activated.

⑪ **NEAR, FAR Button**

Press the "NEAR" side to focus on near objects and the "FAR" side to focus on far objects. Focus buttons are activated when AF off mode.

⑫ **BNC connector**

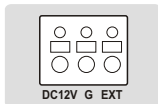
It connects the camera and the monitor or etc.

⑬ **Power input terminal**

Receives DC12V from the power supply.

⑭ **Power Indicator**

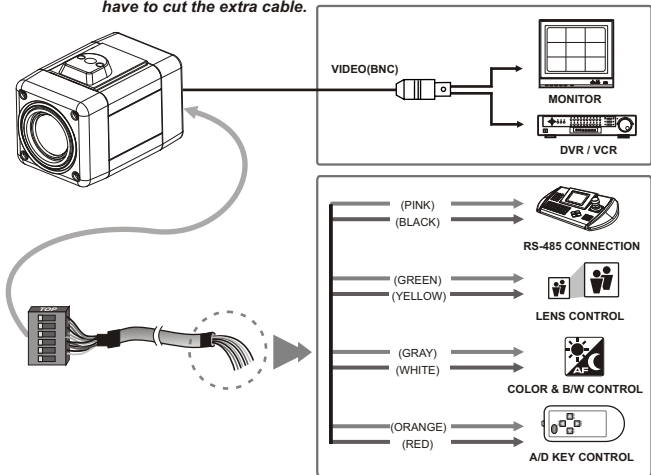
Is lit when the power is supplied.



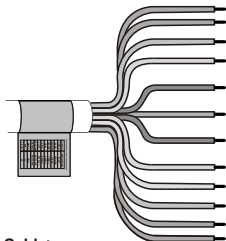
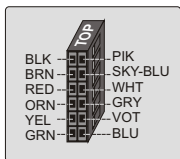
4 Connection



CAUTION : Do not connect the power cable until all other connections have been completed. If you complete the whole connection of cameras, then you have to cut the extra cable.



4.1 COLOR LEAD WIRE & COLOR DISPLAY LABEL



<12pin Cable>

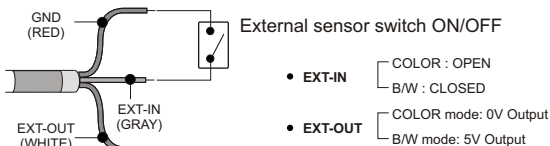
Connection Cable Description

COLOR	DESCRIPTION
GREEN	ZOOM
BLUE	COMMON
YELLOW	FOCUS
VIOLET	A/D KEY 1
ORANGE	A/D KEY 2
PINK	RS-485(-)
BLACK	RS-485(+)
SKY-BLUE	RS-232 TXD
BROWN	RS-232 RXD
RED	GND
WHITE	EXT-OUT
GRAY	EXT IN

4.2 EXTERNAL COLOR & B/W CONTROL

Is connect to an external sensor to receive color & B/W detection signals.

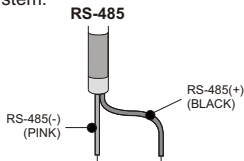
COLOR & B/W



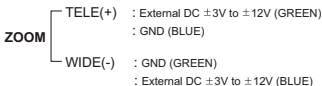
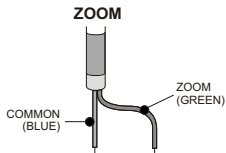
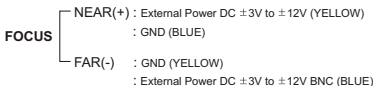
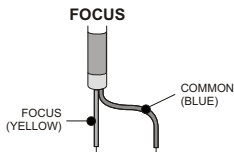
*Note: To validate the sensor inputs, select Function menu B/W mode the EXT

4.3 RS-485 CONNECTION

Connecting to the RS-485 : The Camera can be controlled remotely by an external device or control system, such as a control keyboard, using RS-485 half-duplex. Connect Market Rx+, Rx- to Tx+ and Tx- of the RS-485 control system.

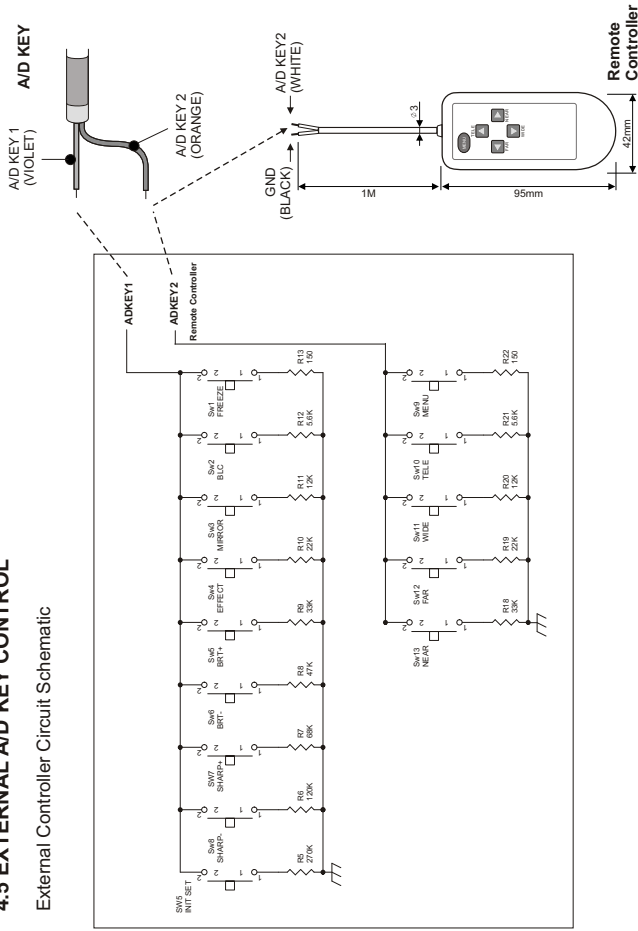


4.4 EXTERNAL LENS CONTROL



4.5 EXTERNAL A/D KEY CONTROL

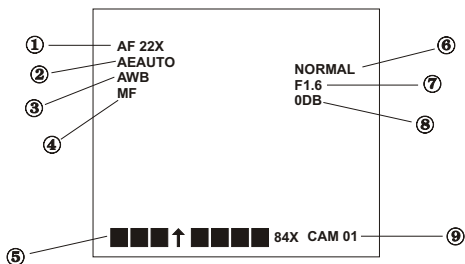
External Controller Circuit Schematic



5 Camera Adjustment



5.1 OSD MAIN SCREEN



- ① Camera title.
- ② Status of the auto exposure.
- ③ Status of the auto white balance.
- ④ Status of the focus mode.
- ⑤ Status of the zoom position, brightness, or sharpness.
- ⑥ Status of the shutter speed.
- ⑦ Status of the iris.
- ⑧ Status of the AGC. (auto gain control)
- ⑨ Camera ID.

5.2 MAIN MENU

<MAIN MENU>	
WB	1
AE	2
BLC	3
TITLE	4
DISPLAY/ALARM	5
CAM SET	6
EFFECT	7
PRESET	8
END	

5.2.1 WB (White Balance)

```
<WB>
AWB
INDOOR
OUTDOOR
MANUAL R/B
WAWB

END
```

AWB	Auto white balance mode.
INDOOR	Indoor white balance mode.
OUTDOOR	Outdoor white balance mode.
MANUAL	Manual mode. You can change R and B Gain manually. For changing R and B gain, use "NEAR" and "FAR" key. If you save the change, and push the "MENU" key.
WAWB	Wide range auto white balance mode.

5.2.2 AE (Auto Exposure)

```
<WE>
AUTO
IRIS PRI
SHUTTER PRI
AGC
MANUAL

                IRIS
                AGC
                SHUT
                LOWSHUT

END
```

AUTO	Auto exposure mode. (Iris, Shutter, AGC)
IRIS PRI	Iris priority auto exposure mode.
SHUTTER PRI	Shutter priority auto exposure mode.
AGC	Auto gain control on/off.
MANUAL	Manual exposure mode. (Iris, Shutter, and AGC)
LOW-SHUT	Display Low-Shutter mode. (Mode can be changed in the preset menu)

5.2.3 BLC (Back Light Compensation)

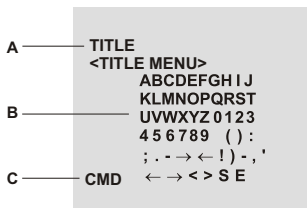
```
<BLC>

DEFAULT
ADJ TOP
ADJ BOTTOM
LEVEL
OFF

END
```

DEFAULT	Default setting. Center weight BLC.
ADJ TOP	You can adjust BLC Zone in left and/or top direction.
ADJ BOTTOM	You can adjust BLC Zone in right and/or bottom direction.
LEVEL	You can adjust BLC level (0 ~ +90) Default value is 30.
OFF	BLC off.

5.2.4 TITLE



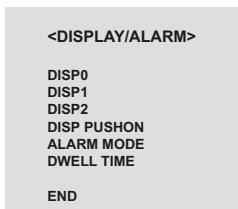
A. TITLE

B. Character Table

C. Command Line

- ← : Move to left
- : Move to right
- < : Erase a left character
- > : Erase a right character
- S : Save title
- E : End

5.2.5 DISPLAY/ALARM



- | | |
|-------------------|-----------------------------------------------------------------|
| DISP0 | Display title and camera ID. |
| DISP1 | Display title, camera ID and zoom lens position. |
| DISP2 | Display all camera status. |
| DISP | Off, On and push on. (Display on when any key is pressed) |
| ALARM MODE | Off, Preset 1~5, B/W (Zoom preset and B/W setup by external-in) |
| DWELL TIME | 10, 20,....120sec. (Dwell time setup of zoom preset) |

5.2.6 CAM SET

```
<CAM SET>
ID
BPS
BRIGHTNESS
SHARPNESS
DISTANCE
MAX LOW SHUT
PROTOCOL
SAVE PROTOCOL & BPS

END
```

ID	Select the camera ID. (1 ~ 255)
BPS	Select serial communication speed. (2400 / 4800 / 9600 / 19200)
BRIGHTNESS	Select brightness level (0 ~ +90) Default value is 30.
SHARPNESS	Select sharpness level (0 ~ 15) Default value is 8.
DISTANCE	Select minimum distance in focus between camera and object. (0.1 / 1.0 / 1.5 / 2.5 / 6.0 m)
MAX LOWSHUT	Select maximum Low-shutter value (x2, x4, x8, x16, x32, x60)
PROTOCOL	Select operating protocol. COMMAND : Camera controlled by RS-232C command. FASTRAX : Fastrax protocol. PELCO-D : Pelco-D protocol. PELCO-P : Pelco-P protocol.
SAVE PROTOCOL & BPS	Save protocol and BPS.

*NOTE 1 : You can choose BPS menu appropriate for keyboard protocol.

*NOTE 2 : If you change BPS or PROTOCOL menu, you have to select PROTOCOL & BPS menu.

Although you change BPS or PROTOCOL menu, the terms of change is not applied unless you select save PROTOCOL & BPS menu.

5.2.7 EFFECT

<EFFECT>

D-ZOOM
NEGA/POSI
B/W
MIRROR
PIP
FREEZE
DNR
END

D-ZOOM	Digital Zoom on/off.
NEGA/POSI	Select the Negative or Positive picture.
B/W	Select Color & B/W picture or EXT mode.
MIRROR	Select horizontal reverse picture.
PIP	Picture In picture on/off.
FREEZE	Select real and still picture.
DNR	Digital noise reduction mode on/off

CAUTION : *Freeze mode is automatically off, when zoom and focus operation.*

5.2.8 PRESET

```
<PRESET>
FOCUS
SYNC
INIT
LOAD
SAVE
SHOT
ZOOM PRESET
SET ZOOM PRESET
END
```

FOCUS	Select auto, manual, pushauto mode.
SYNC	Select internal or line lock mode. Sync phase is adjustable in line lock mode.
INIT	Camera initialize mode selection (DEFAULT / PRESET).
LOAD	Load default or preset parameters of camera (DEFAULT / PRESET).
SAVE	Save preset camera parameters.
SHOT	Select Normal, DIS, WDR, or Low-Shutter mode. DIS(digital image stabilization) WDR(wide dynamic range) Low-Shutter(low shutter speed mode)
ZOOM PRESET	Select zoom preset number
SET ZOOM PRESET	You can set zoom position of zoom preset

CAUTION : *In the WDR or Low-Shutter mode, AF performance and Image quality can be decrease.
DIS is operated on D-Zoom X 2.
DNR is disabled In freeze, Low-Shutter and WDR mode.
WDR is not effective in freeze status.*

6

Troubleshooting and Maintenance



6.1 TROUBLESHOOTING

If problems occur, verify the installation of the camera with the instruction in this manual and with other operating equipment.

Isolate the problem to the specific piece of equipment in the system and refer to the equipment manual for further information.

PROBLEM	POSSIBLE SOLUTION
Nothing appears on the screen	Are the power cord and line connection between the camera and monitor made properly?
The image on the screen is dim.	Is the lens dirty? If so, clean the lens with a soft, clean cloth.
The camera is not working properly and the surface of the camera case is hot.	Is the camera connected to the proper power?
The contrast on the screen is too weak.	Adjust the contrast feature of the monitor. Is the camera exposed to strong light? If so, change the camera position.

6.2 MAINTENANCE

Preventive maintenance allows detection and correction of minor that faults before they become serious and cause equipment failure.

Every three-month, perform the following maintenance.

- A. Inspect all connection cables for deterioration or other damage.
- B. Clean components with a clean damp cloth.
- C. Verify that all the mounting hardware is secure.

7 Specifications

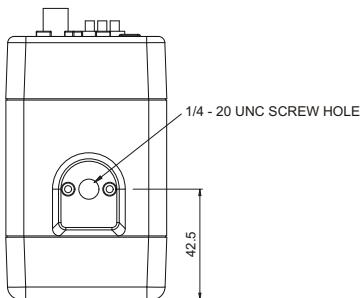


MODEL		NTSC	PAL	
POWER	Power Source	DC 12V \pm 10%		
	Power Consumption	5.5 Watts		
GENERAL	Image Sensor	1/4" SONY Super HAD CCD		
	Total Pixels	811(H) x 508(V)	795(H) x 596(V)	
	Scanning System	2:1 interlace		
	Scanning Frequency	15.734KHz(H), 59.94Hz(V)	15.625KHz(H), 50Hz(V)	
	Sync. System	Internal / External (Linelock)		
	Resolution	480 TV lines(Color), 510 TV lines(B/W)		
	Min. illumination	0.5 lux(Color), 0.1 lux(B/W), 0.002 lux(Low-shutter)		
	Video Output	1.0 Vp-p (75 ohm, composite)		
	S/N Ratio	52dB (AGC off)		
	Camera Control	RS232, RS485(FastraxII, Pelco D, Pelco P), A/D key		
	F U C N T I O N	Focus Mode	Auto / Manual / Push AF	
		White Balance	AWB / Indoor / Outdoor / Manual / WAWB	
		Auto Exposure	Auto / Iris PRI / Shutter PRI / AGC / Manual	
		Iris Control	Auto / Manual (F1.6 ~ F32)	
		AGC	On / Off (30dB max.)	
		Shutter Speed	Normal ~ 1/10,000	
		BLC	Default / ADJ Top / ADJ Bottom / Level / Off	
		Title	A ~ Z / 0 ~9	
		Display	On / Off / Push On (DISP0 / DISP1 / DISP2)	
		CAM ID	001 ~ 255	
		BPS	2400 / 4800 / 9600 / 19200	
		Brightness	0 ~ 90 steps	
		Sharpness	0 ~ 15 steps	
		Distance	0.1M / 1.0M / 1.5M / 2.5M / 6.0M	
		Low Shutter	x2 ~ x60	
		Effect	D-Zoom, Nega/Posi, B/W, Mirror, PIP, Freeze, DNR	
		Pre-set	INIT / LOAD / SAVE	
SHOT	Normal / DIS / WDR / Low-shutter			
L E N S	Zoom Ratio	Optical x22, Digital x11 Zoom (Video AF)		
	Focus Length	f = 3.9 mm ~ 85.8 mm		
	Aperture Ratio	F1.6 (wide) ~ F3.7 (tele)		
CONNECTOR & ETC.	Power Input	3-pin terminal block		
	Video Output	BNC connector		
	Operating Temperature	-10°C ~ +50°C		
	Operating Humidity	0 ~ 96% (non-condensing)		
	Storage Temperature	-20°C ~ +60°C		
	External Dimension	62(W) x 62(H) x 105(D) mm		
Weight	315 g			

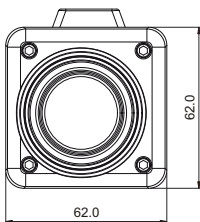
8 Dimensions



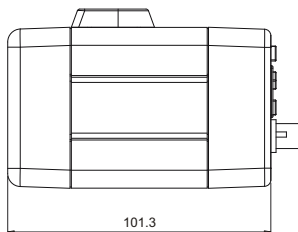
TOP VIEW



FRONT VIEW



RIGHT SIDE VIEW



Unit: mm